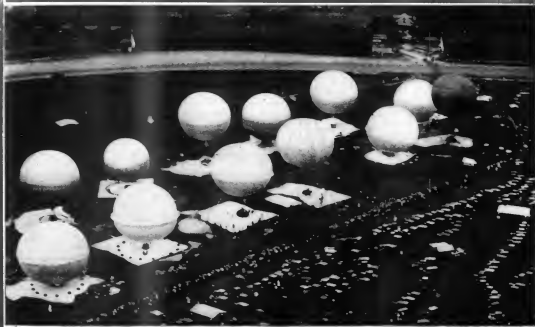


# AVIATION

JULY 30, 1923

Issued Weekly

PRICE 10 CENTS



Start of the National Balloon Race, Indianapolis, July 4

VOLUME  
XV

## SPECIAL FEATURES

NUMBER  
5

ARMY BALLOON WINS NATIONAL RACE  
AMERICAN ENTRANTS IN SCHNEIDER RACE  
PREPARATORY WORK FOR ST. LOUIS AIR RACES  
LIEUT. MAUGHAN'S SECOND DAWN TO DUSK FLIGHT

THE GARDNER, MOFFAT CO., INC.  
HIGHLAND, N. Y.  
225 FOURTH AVENUE, NEW YORK



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JULY 30, 1923

# AVIATION

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ITHACA,



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By this acquisition, the Wright Company adds to its present line of water cooled airplane motors the Lawrance line of air cooled motors.

The Lawrance Company has been the pioneer in the development of air cooled motors and today has the only fully developed line now being produced in this country.

The increased engineering and production facilities resulting from the merger of the Lawrance and Wright Companies will result in an increased speed of development in the air cooled type of engine, which is rapidly becoming a vital factor in aviation.

WRIGHT AERONAUTICAL CORPORATION  
Paterson, New Jersey, U. S. A.



The  
Illustration of  
Lawrance's  
Engine

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TREASURER  
GEORGE NEWELL  
BUSINESS MANAGER

Vol. XV

July 30, 1923

No. 5

# AVIATION

LEONARD A. ORBY  
EDITOR  
VICTOR E. CLARK  
EDITORIAL  
EDWARD F. WRIGHT  
EDITORIAL  
HARRY H. LINDSEY  
EDITORIAL

## Fiber vs. Non-Fiber

I would be difficult to express clearly the opinion that the average flier holds of the non-fiber, and almost equally so of the fiber, of the so called "fiber" in respect to the flier. Pilots are, as a rule, young men whose acquaintance with business has been slight, and who yet have had the extraordinary experience of becoming proficient in a new activity in their careers.

Perhaps it is not too much to say that the general public looked upon the aviator as a daring or reckless person of the superman type. This may have had the effect of increasing the temperamental character of the young pilot. At the same time it is generally felt by non-fliers that the pilot, while he is in the air, is not to be counted on as an organism or business executive.

The pilot, on the other hand, feels that the man who doesn't fly is out of place; experience, management, or something of the sort, is his opinion of the application of engineering to a craft in other fields. He posits the "fact" of a craft as technical analysis, and looks upon the aircraft constructor as one who is only thinking of controls and must be checked up at all times. As to the pilot's attitude toward those non-fliers who rank them in the service or who direct their operations in commercial aviation, he feels that he would be given the widest latitude of judgment and not be subjected to the immediate direction of a non-flier. Some pilots, misreading many of the factors that enter into sound business enterprise feel that they can make a success of air transport on the strength of their sole flying experience, and many such enterprises have failed on this account.

The truth of the matter is that both the fiber and non-fiber in aviation must learn to respect each other and know that one is a necessary complement of the other. The business side of large enterprises is needed to put aviation on a sound financial basis, has general business experience in a valuable way in management and operation. The pilot, on the other hand, is just as important a factor in the success of an aerial enterprise, for it is upon his skill, judgment and devotion that the safety of the passengers and cargo, and the smooth operation of the service depend.

## Gas and Capital Ships

THE man with which aerialists can buy a bargain of gas or before an enemy fleet is recognized by Lord Paul. There is an article in the July issue of the Proceedings of the U. S. Naval Institute. He pictures the officers and crew of a battleship in action in loaded down with gas masks, appropriated clothing, shoes, uniforms, and with all the commitments doing the maintenance work required on a battleship in action.

It will be recalled that the Germans in 1917 seized power in a mobile screen and gave the English fleet a disastrous surprise. Even though the passage through the mobile screen took only a minute, the English crews were thrown into a paroxysm of nausea and were incapacitated for action for some time after.

The battleship, during action, is not the pleasant place in which to work even under the most favorable conditions of the sea or weather. The better type of a sailor, straggled by the want and serving his gun will probably be superseded by one with the protective armor that modern warfare requires.

Even though the use of poison gas is limited by international agreements, there do not include all possible causes nor are they regarded in military or naval circles as a certain preventative of the use of gas in extreme emergency. We hear comparatively little of gas attack and defense developments, probably on account of the agreements entered into, but it will be worth better to have a more practical form of protection than the agreement of diplomatic representatives. During the tests to be made this time by the Army Air Service with old battleships as objectives, an most important results can be obtained that concerning the possibilities of gas attack.

The Navy evidently thinks little of this matter, for the article mentioned concludes by expressing the hope that "if the article succeeds in starting just one or two warship arrangements, our ships will have been well off, for the truth of the matter is that the service is too prone to minimize the danger from gas, or, what is worse, not to give the subject much thought at all."

## Another Old Saying Gone

AS swift as a bird, has been for centuries an expression representing the utmost in speed. Now comes Col. H. Merritt-Brown of England, who has timed the speed of birds with scientific measuring apparatus and he learns that bird flight is comparatively slow.

From various observations, the following speeds for some familiar birds were determined in miles per hour: Starling, 22-28; snipe, 22-28; swallow, 27; swift, over 60; pigeon, 51; grouse, 55; duck, 42-50; and lapwing, 40-45. In conclusion Colonel Merritt-Brown finds that birds have two speeds, one a normal rate used for everyday purposes and one for emergency, and an accelerated speed, which is used for protection or pursuit and which in some cases nearly doubles the rate of normal speed.

So another expression is laid away between the pages of Father Time's memory book, and some new stage must give the world a new words that will indicate that speed now means two hundred, three hundred and even more miles an hour.

## The Second Dawn to Dusk Flight Attempt

Lieut. Russell L. Maughan, A.S., Flies from Mitchell Field  
To Rock Springs, Wyo.—1930 Miles in 15 hr.

The second attempt within ten days of Lieut. Russell L. Maughan, A.S., to span the continent between dawn and dusk, made July 19, ended in failure at Rock Springs, Wyo., where, as he reported from his log there at 5:56 p. m., (containing time). He had traversed more than two-thirds of the distance across the United States, a total of 1930 miles, and was making toward his goal at 139 m.p.h. after leaving three of his five stopping places behind in his race with the sun, when he was forced to descend.

A few strokes of oil, squaring from an almost unobtainable reputation as the oil wonder of the Carter pursuit plane, overcame the misfortune of the flight.

A smaller tank had several times, on lower's delay, at Cheyenne, Wyo., his third stopping place. Shortly after noon

Lieutenant Maughan characterized an responsible reason narrated in the East that his plane might have been timed, and with before he started the flight. "It was simply a case of the solid part of the tank running down as a result of its resistance caused by steam," he asserted.

"It would have been impossible for any one to have compared with the oil wonder," he declared. "Any such tests are unfair."

The tank assumed at a place where many of the upper, was used to be removed of the machinery had been tested with.

It was fifteen hours to the minute when he landed at Rock Springs from the hour he took off at Mitchell Field, in which time he covered a total distance of 1930 miles. The three up-



The Carter pursuit plane (Curtis D12, 400 hp. engine) on which Lieut. R. L. Maughan, A.S., flew on July 19 from Mitchell Field, N. Y., to Rock Springs, Wyo., a distance of 1930 miles which he covered in 15 hr. elapsed time.

Lieutenant Maughan was driving his motor at top speed to make his last hour. For more than 300 miles westward from Cheyenne the motor was smooth, but at Rock Springs the motor began to balk. Lieutenant Maughan passed over the air field field at 5:56 p. m., determined to continue to St. Louis, Utah, the next stopping place.

### Compelled to Turn Back

As the cause from the engine oil became stronger, however, he turned back and landed at Rock Springs field. A brief examination by two air field pilots convinced Lieutenant Maughan that it would be impossible to reach San Francisco, the Western terminus of his flight, before dawn. Bitterly disappointed at the failure, when success seemed almost assured, Lieutenant Maughan made a circuit examination of the oil wonder and went to a Rock Springs hotel for the night.

"How do you feel?" he was asked.

"Well, how would you feel?" he replied.

"How how did you feel about it?"

"Well, it was a leak in the oil cooler. I noticed it first near North Platte, Neb., but it was not very bad. I thought it had fixed at Cheyenne, but it became worse as I drove on. Twenty miles out of Rock Springs it began to leak in earnest. I thought it had to leak."

Asked whether he was tired, Lieutenant Maughan said: "Well, I'm feeling great a big sleep here. I am not very tired, however, and could easily have gone to San Francisco."

which he made, at Dayton, St. Joseph and Cheyenne, consumed 1 to 51 hours.

### Brief Story of the Flight

Lieut. Maughan took off at Mitchell Field at 4:45 a. m. (local standard time) toward McCook Field, Dayton, Ohio, the first leg of his tremendous flight, the pilot "spiced" with the usual array between the two cities and used fuel-air fuel-mixers to obviate the danger of burning fuel, which cost him a delay of more than an hour in his first attempt. He arrived at Dayton at 8:55 a. m. (Eastern standard time), 51 miles behind his tentative schedule. He had covered the first leg of his trip, 570 miles, in 4 hr. 27 min. His top speed averaged during most of the journey had averaged 155 m.p.h.

After one plane had been refueled and examined and it had taken a light breakfast he took the air at 5:53 a. m. and headed westward for St. Joseph, Mo.

At 11:55 o'clock central time Maughan arrived at St. Joseph. He was greeted effusively by the townspeople, who had witnessed the disappearance of his first flight attempt. A distance of 1,140 miles, he was already almost half way across the continent, but still slightly behind the schedule he originally had set.

His plane was examined and tuned up again and he took off at 12:03 p. m. for Cheyenne, the third stoppage point. The first projected break in Maughan's schedule came at

Cheyenne, where he landed at 3:32 p. m. (containing time). With the summer later, still suffering from the effects of the storm which had resulted from the failure of the looking oil, he was, determined, despite the handicap he then was under, to repeat his unconquered trip before daylight vanished.

Lieutenant Maughan had covered a total distance of 1680 miles when he landed at Cheyenne. On the basis of the total elapsed time since he had left Mitchell Field, he had traversed two-thirds of the continent at an average speed of 139 m.p.h. He topped off at 5:57 p. m. after the oil had been fully restored.

From Cheyenne to Rock Springs, Maughan drove his plane at a speed of 139 m.p.h. for 245 miles. When landed at Rock Springs he had more than 645 miles of his goal.

A telegram sent by Lieutenant Maughan after he had made a second landing at Rock Springs reached St. Louis at 10:37 p. m. It read:

"Accordingly, Officer, Mitchell Field, L. J. New York: Two a. m. oil cooler makes continuous, impossible today."

"Maughan."

The message was read to the air personnel at the field by Mr. William H. Hendler, the new commandant and named good success and rapid.

Plans for the completion of Lieut. Maughan's flight was not abandoned at Mitchell Field until the very last minute. A dispatch had been arranged to retransmit the record that seemed to show when he was reported going well over 150 m.p.h. at 10:37 p. m. using. The crew of the desert port a damper on the

damper and many of the officers returned to the field in the hope that the flight would be resumed after repairs.

They hung around the radio and telephone room at post until nearly midnight.

Officers at Mitchell Field believe the fact that Maughan was not at Cheyenne proved the oil wonder of the field.

"The plane must have got a terrific jolting in rough air over the plains," said one of the officers. "That must have loosened the oil land some place and when Maughan opened her up to the full he got the two hundred miles an hour he was seeking over Rawlins, that finished it."

It is recognized at Mitchell Field that the shortening days will make another attempt at the record impossible this year.

Following is a schedule of Lieutenant Maughan's flight from Mitchell Field to Rock Springs, the figures being eastern standard time.

	Arrived	Left	Miles
New York	6:58	7:58	100
St. Joseph	11:55	12:03	1,140
Cheyenne	3:32	3:55	1,680
Rock Springs	5:57	6:00	1,200

Maughan's own schedule for the trip prepared prior to his first attempted flight, on a basis of 150 m.p.h. average speed follows:

	Arrived	Left	Miles	Hr.	Mp.h.
Mitchell Field, Dayton	4:45	5:53	570	1	51
St. Joseph	11:55	12:03	1,140	1	91
Cheyenne	3:32	3:55	1,680	1	136
Rock Springs	5:57	6:00	1,200	1	120

## Preparatory Work for St. Louis Air Races

Discouraging reports come from St. Louis regarding the progress of work on the field where the international Air Races will be held Oct. 1, 2 and 3. Preparations have moved from a general construction of the field, to a detailed construction of the St. Louis Aerodrome, which is the main work in which the city is engaged. The work is being done by the St. Louis Aerodrome, which is the main work in which the city is engaged. The work is being done by the St. Louis Aerodrome, which is the main work in which the city is engaged.

### Rapid Progress in Field Work

"If there be any who believe in the possibility of the success of the St. Louis Field for the International Air Races, Oct. 1, 2 and 3, let them compare their minds. The field will be ready and it will be in such shape that some one could enter it in readiness in any day of the fall of St. Louis, Missouri."

"The records show that up to Tuesday night, July 25, we have made 125,000 cubic yards of earth. The rough grading will be finished within ten days. This grading, by the way, represents the equivalent of 50 miles of ordinary railroad track, and it is 75 per cent completed. We have had on job over 100 men, and it is now being increased to 150 men, for 15-16 hours a day, and 75 three-shift men teams. With 800 men and the working contractors."

"One of the big jobs involved in getting the grounds ready for the races was the construction of a sewer one mile long and five feet across, giving a clear straight-away waterway under the field. It is now being completed. The sewer is now being laid by the St. Louis Sewerage Co. Contractors. The job will be finished by August 1. The new side of sewer will be placed 3 miles of increasing of the old Colburn Creek, a small stream which was troublesome only in winter. The sewer will be covered by a slightly elevated for the road, so that when the weather conditions may be Oct. 1, 2 and 3, the drainage of the drainage contractors have finished about 600 ft. of the 5 miles of sewer, making a sewer from 12 to 12 in. to be laid. The job also will be completed by Aug. 1.

"Already work has been begun on the foot of the steel hangars, the grading and concrete foundations having been completed. The work on the hangars is now being done by the structural workers and the first column was erected today (July 25). The first two hangars will be completed in two weeks, according to estimates of the Metropolitan Valley Construction Co., which has the contract. Four additional hangars and a large machine shop will be erected later."

Hangars are being built on a site of about 50 ft. high, with a capacity of 30,000 gal. This is one of the government requirements, as, in addition to the farm and machines, there will be 300 Regular Army troops quartered at the field during the races. A large well will be sunk to furnish an absolute water supply.

"Setting arrangements for the Air Races have been worked out, and provide for 12,000 hotel, each accommodating 100 persons, a total of 1,200,000, with provisions for 30,000 people. In addition there will be more than the grounds for parking a maximum of 6000 cars. The main entrance will be located on National Route Road, east of the present terminus of the Brainerd car line."

May M. F. Benson, who will be the personal representative of Maj. Gen. Francis B. Patrick, Chief of the U. S. Army Air Service, in connection with the preparations for St. Louis Air Races, was reported to arrive in St. Louis, July 25 from McCook Field, Dayton, Ohio. Major Benson was formerly in command of Bolling Field, Washington, D. C., and was headquarters at St. Louis, Air Base, 211 Leavenworth Street, until after the races in October.

### "Aerial Conventions Laying"

The racing program of an "aerial convention" being held at St. Louis Field, July 12, by way of formally dedicating the field and marking the creation of the first column of the first steel hangar, Maj. Albert Bond Lambert, former senior commander of St. Louis, took a 150 ft. plane as an airplane and dropped it with a fair degree of accuracy near the site of the hangar. Arthur D. Ruge, General Man-







# INTERNATIONAL AIR RACES

ST. LOUIS FIELD, (October 1-2-3, 1923)

*Don't Miss Them*

**\$13,300 CASH PRIZES**  
**\$30,000 IN GOLD AND SILVER**

## TROPHIES

Including

Pulitzer Trophy  
Liberty Engine Builders' Trophy  
"On to St. Louis" Trophy

## THIRD NATIONAL AERO CONGRESS

CONVENTION OF THE  
NATIONAL AERONAUTIC ASSOCIATION  
OF U. S. A.

AIR INSTITUTE  
OF THE  
AERONAUTICAL CHAMBER OF COMMERCE  
OF AMERICA

*Beautiful Electric Lighted Floats*

*and Pageant of the Veiled Prophet*

**AERONAUTICAL EXHIBITION OF SMALLEST, LARGEST,  
FASTEST AIRCRAFT IN THE WORLD**

**AERO ENGINES, PROPELLERS, ACCESSORIES**

The fastest ARMY and NAVY and MAIL PLANES are entered in the races.

	Total Prize
1. September 20 to 30—"On to St. Louis" for St. Louis Chamber of Commerce Trophy.....	Civilian Only..... \$1,000
2. Monday, Oct. 1—Two Sevens (50 H. P. or less) for Flying Club of St. Louis Trophy.....	Civilian Only..... \$1,000
3. Monday, Oct. 1—Observation Planes for Liberty Engine Builders Trophy.....	Military Only..... \$1,500
4. Tuesday, Oct. 2—Light Commercial Handicap (200 H. P. or less) for American Country Club of Detroit Trophy.....	Civilian Only..... \$2,000
5. Tuesday, Oct. 2—Large Capacity Planes for Mechanics Exchange of St. Louis Trophy.....	Civilian and Military..... \$2,000
6. Tuesday, Oct. 2—Model Race for Motor-kill Trophy.....	Members Junior Flying League, National Aeronautic Association..... \$ 300
7. Wednesday, Oct. 3—All Mail Planes for Detroit News Air Mail Trophy.....	U. S. Air Mail Pilots..... \$1,500
8. Wednesday, Oct. 3—High Speed Planes for Pulitzer Trophy.....	Civilian and Military..... \$4,000

Entered by President Warren G. Harding and the Secretaries of the Army and the Navy and the Postmaster General. Sanctioned by the National Aeronautic Association of the U. S. A. under the rules and Regulations of the F. A. I.

For full information, description of trophies, entry blanks etc. address:

**FLYING CLUB OF ST. LOUIS**

511 Locust St.

St. Louis, Mo.





## AIRPORTS AND AIRWAYS

This Department is concerned with all civil flying activities such as the establishment of airports, the surveying of airways, measures to increase flying safety, the construction of flying routes and the establishment of flying schools, the surveying of airways, the construction of flying routes and the establishment of flying schools, the surveying of airways, the construction of flying routes and the establishment of flying schools.

### Air Mail Performance 96.73 Per Cent

The Air Mail Service operation for the fiscal year 1932-1933 shows that airplanes are capable to meet the known requirements, time, day and season.

Air Mail Service performance for 1932-1933 was 96.73 per cent perfect. This figure was obtained on a year's schedule of flights that totaled 1,250,360 miles between New York and San Francisco. The performance record fulfilled the hope of the Air Mail Service for improvement on last year's record which was 95.53 per cent.

Following are the monthly percentage performance figures for the fiscal year ending June 30, 1933, which have been computed by the Post Office Department: 1932, July, 90.43 per cent; August, 100 per cent; September, 96.50 per cent; October, 96.5 per cent; November, 96.2 per cent; December, 95.53 per cent; 1933, January, 93.73 per cent; February, 95.93 per cent; March, 91.90 per cent; April, 95.53 per cent; May, 95.04 per cent; June, 95.21 per cent.

Performance figures of the Air Mail Service are based on the number of miles traveled with mail and season the number of miles traveled. The importance of the record set up for 1932-1933 is further stressed by the fact that air mail planes are not only able to meet the requirements of the service but are also able to meet the requirements of the service.

The figures for performance in previous years of the Air Mail Service show the steady improvement. They are as follows: 1931, 93.14 per cent; 1930, 91.53 per cent; 1929, 78.64 per cent; 1928, 82.61 per cent; 1927, 95.53 per cent.

### Flying in the Northwest

The students, the largest commercial flying class ever put together in the Northwest, are now completing the course of instruction under the supervision of Ted Hansen, chief pilot of the Bank's Flying School at Walla Walla, Wash. Since the middle of March, a total number of 905 flights have been made by 112 of these students.

All of Hansen's ten students made their first flights above their last night's instruction in the air, the average being five hours. The course was completed by the class with out any accidents or incidents, not a single bad landing being made in nearly a thousand flights.

The students are from 16 to 45 years. The ten students who have completed the course are John Langley, Jr., Warren Langley, Walla Walla; C. H. Harris, Milken, Ore.; D. F. Johnson, Reno, Ida.; E. A. Larson, Spokane, Wash.; John Langley, Jr., Walla Walla; C. H. Harris, Milken, Ore.; D. F. Johnson, Reno, Ida.; E. A. Larson, Spokane, Wash.; John Langley, Jr., Walla Walla; C. H. Harris, Milken, Ore.; D. F. Johnson, Reno, Ida.; E. A. Larson, Spokane, Wash.

Twelve being the largest commercial flying class ever graduated in the Northwest, the class is the first in the history of the Northwest with over 80 per cent of the students who fly for a living. Every one of the students has been up in the air.

Commenting on the commercial situation in the Northwest, Mr. Hansen said:

Communications is the first effect, followed by "Aerobic Economy, Aviation, 225 Feet Air, New York City" should be kept, accurate and in the past. They should deal with facts, not with theories or speculations. While American and flying activities will naturally be the main theme, communications will also be included from Canada, Mexico, and other parts of the Western Hemisphere. Eastern.

In the southeast corner of the first grounds just west of the D. W. station, the site of the most wonderful record airports ever seen. It is now seen to be a fact. All that is left of Walla Walla's history in the field of aviation is the memory of the field.

There has been some interest around in Walla Walla in flying than ever before and judging from reports from all over the nation, it is safe to say that 1933 will be the greatest year in the history of aviation.

### New Vought Spotting Plane

Delivery was made to the Navy on July 13 by the Glenn Metal Corp. of Long Island City, N. Y., of the second type BV-3 (two-seater) spotting plane for a standard for a number of this type plane. The plane was set up at a complete factory at Fort Washington, L. I., under much order for delivery by air to the west coast. Richmond, at Tidewater, States Island. The Richmond was scheduled to sail immediately for European waters, and the new plane was to be one of the equipment of the new ship.

Since H. B. Sullivan, chief pilot of the ship, detailed to the Richmond, piloted the new DOL on its first flight. The DOL is a replacement for a retired plane and was built which are interchangeable with conventional Vought wheel chassis. It is powered with the 8 cyl. Lycoming T engine and is the latest airplane designed and developed by the Glenn Vought Corp. for the naval air force for use as an aircraft equipped aircraft and battleships.

### Port Washington Activities

Among the commercial flying activities in the vicinity of New York, there will be known with long experience, the operation of flying boats was still going strong. There was H. T. Pollock, Henry Koenig and Wanda Candler. They are operating two seater, single with 100 hp 78 engine with headquarters at the Coney Island, Port Washington, Long Island. Passenger flights are conducted by Port Washington and the Westchester Bellows on the operation of the Coney Island. The new flying school is taking flying instruction under these pilots, and they report that their passenger flying is bringing in four returns every week out into competition.

### Canadian Airports

Artistic License No. 10, issued Feb. 8, 1933, to the Toronto Co. of Great Britain, P. Q., for a commercial airport station of over 100 ft. at Lorne's Field, P. Q., has been notified by the Canadian Air Force.

A license for the new airport was issued to the Lorne's Field, P. Q., by the Canadian Air Force.

### Chicago Activities

Richard Bosticher, who has been flying for several months from Chicago, has been flying his latest "Bosticher" to Kansas City's Field in Illinois. John Miller, of the Lorraine's Field in Illinois, will also bring his Custer Jr. to Chicago's Field, which has just returned from a long trip to his home town in Missouri.

### Planes Rush Flight Pictures to New York

A commercial air transport received a great boost in connection with the Dempsey-Gibson prize fight held Wednesday, July 4, at Shelby, Mo., when several news and photo-graphic agencies and airplanes for carrying photographs and motion pictures of the fight to Chicago and New York.

The first picture of the Dempsey-Gibson fight, the picture of the fight, was taken by the Chicago Tribune's plane, which was a Curtiss Condor, piloted by W. L. Smith. The last of the last of the top from Shelby, arriving at the Chicago Field in Chicago, L. I., at 3:28 p. m., approximately three hours after the first plane had taken off from the site of the fight. Smith took flight at 7:30 in the morning and the last of the last of the journey under most unfavorable conditions.

Smith, who flew the first part of the trip from Shelby to Chicago, in his Curtiss plane Wednesday afternoon at 5:30 in the morning, 5:30 per hour, and made Chicago, L. I., at 7:30 a. m. Smith took flight at 7:30 in the morning and the last of the last of the journey under most unfavorable conditions. Smith took flight at 7:30 in the morning and the last of the last of the journey under most unfavorable conditions.

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### French Air Lines

The French air lines now in operation, which are shown in the accompanying sketch map, are as follows:

1. Paris-London. Operated by the Air-Union. Twice daily except Sundays.
2. Paris-Breast-Edinburgh-Amsterdam. Operated by the Air-Union. Daily except Sundays.
3. Paris-Strasbourg-Tripoli-Tunis. Operated by the Air-Union. Daily except Sundays.
4. Paris-Strasbourg-Tripoli-Tunis. Operated by the Air-Union. Daily except Sundays.
5. Paris-Strasbourg-Tripoli-Tunis. Operated by the Air-Union. Daily except Sundays.
6. Paris-Strasbourg-Tripoli-Tunis. Operated by the Air-Union. Daily except Sundays.
7. Paris-Strasbourg-Tripoli-Tunis. Operated by the Air-Union. Daily except Sundays.
8. Paris-Strasbourg-Tripoli-Tunis. Operated by the Air-Union. Daily except Sundays.
9. Paris-Strasbourg-Tripoli-Tunis. Operated by the Air-Union. Daily except Sundays.
10. Paris-Strasbourg-Tripoli-Tunis. Operated by the Air-Union. Daily except Sundays.



Map of Europe showing French air lines in operation

service will be extended the summer to Cape City, and from there by means of flying boats to the Canary Islands, and next to the Cape Verde Islands, and from there to the Cape Verde Islands.

2. Casablanca-Oran. Operated by the Air-Union. Twice daily. (To be extended to Algiers and Tunis.)

3. Casablanca-Oran. Operated by the Air-Union. Twice daily. (To be extended to Algiers and Tunis.)

4. Casablanca-Oran. Operated by the Air-Union. Twice daily. (To be extended to Algiers and Tunis.)

5. Casablanca-Oran. Operated by the Air-Union. Twice daily. (To be extended to Algiers and Tunis.)

6. Casablanca-Oran. Operated by the Air-Union. Twice daily. (To be extended to Algiers and Tunis.)

7. Casablanca-Oran. Operated by the Air-Union. Twice daily. (To be extended to Algiers and Tunis.)

8. Casablanca-Oran. Operated by the Air-Union. Twice daily. (To be extended to Algiers and Tunis.)

9. Casablanca-Oran. Operated by the Air-Union. Twice daily. (To be extended to Algiers and Tunis.)



## Orders to Officers

Lieut. Claude DeWitt C. Ramsey, det. Air Station, San Diego, Cal.  
 Lieut. Robert L. Fuller, det. Aircraft Squadron Battle Fleet in duty receiving flying, Navy Air Station, San Diego.  
 Lieut. Rex G. Blumhagen, det. Naval Air Station, San Diego, to Naval Training Station, San Diego.

Lieut. Carl Claude H. Clark, (S.C.) det. Naval Air Station, Hampton Roads, to temporary duty U.S. school of application.

Ensign, Stephen A. Arden, to duty U.S. school.

Ensign, William J. Brennan, detached U.S.S. Sandpiper, to duty, Fleet Naval District.

Lt. (jg) Earl R. DeLong, detached U.S.S. Wright, to temporary duty, Receiving Ship, Philadelphia.

Lt. Charles N. Legend, detached Bureau of Aeronautics, to temporary command, M.I. V. Connecticut, Mass.

Lieut. (jg) James F. Wierce, detached U.S.S. Wright in command, to U.S.S. Colorado and on board when commissioned.

Lieut. John M. Standish, detached, Air Squadron Scouting Fleet, 50 Bureau of Aeronautics.

Ensign, Melbourne N. Elliott, at Supply Corps School of Application, in Naval Aircraft Factory, Navy Yard, Philadelphia.

Ensign, William M. Tolson, detached, Bureau of Aeronautics in U.S.S. Enterprise.

Lieut. Thomas E. Reisher, detached Aircraft Squadron Scouting Fleet, to Receiving Ship, New York, N. Y.

Lieut. Ralph Wyman, detached Aircraft Squadron Battle Fleet in U.S.S. Milwaukee.

Ensign, Harold J. McSherry, detached Aircraft Squadron Battle Fleet in U.S.S. Milwaukee.

## Teaching Radio to Sleeping Students

Further reports from the Naval Air Station at Pensacola, Fla., on the success that has been obtained in teaching radio to student aviators in their sleep give interesting information on the progress of this novel and useful experiment. In fact it may be said that the experimental stage in the trials has been past and the method has become standard, so a means of saving students from failure in the course.

When the test was started twelve students were aviators in three groups in radio code. After two nights during which radio code was sent to the students in the sleep only two of the students were unsatisfactory, and these two men had left before the experiment was finished, promising to do better.

The procedure has been to have the students sleep on the tables in the radio room where the code is taught in the regular school period and send messages of varying speeds all night. The students concentrate on the messages that are sent through until they drop off to sleep. To quote a report on the subject:

"It is very interesting to watch the students during one of these night periods. If the operator intermits and occasionally makes errors in sending the students will soon become more accurately in their sleep. If the students are on the rate of sending changes appreciably, it is rare to disturb them, and in most cases will arouse them. Even in the midst of the deepest slumber, the only 'S.O.B.' at a different rate of speed will awaken them instantly."

It is planned to secure electrical sending machines which will send all night and do away with the necessity for an operator for future classes.

## Ordinance Equipment on Planes

It has been decided that the practice of removing ordinance equipment from planes when it is not actually in use tends to the development of aviation accidents, since it requires the aviator to develop an installation that will stand up under actual operating conditions. Therefore the Commander, Aircraft Squadron Battle Fleet, has issued an order on the subject that will remedy the condition. The following is from the order:

"It will therefore be the practice for all planes to carry their complete equipment except when some specific mission prevents. When some reason requires the removal of ordinance equipment, it shall be removed as soon as possible.

"Performance tests of planes should be conducted with ordinance attached in place."

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